Docket No. A-3-4



CLAIMS

1. -53. (Canceled.)

54. (Currently Amended) A surgical instrument for applying high frequency electrical energy to tissue at a target site comprising:

a shaft having a proximal end and a distal end;

an electrode terminal having an active electrode surface at or near the distal end of the shaft, the active electrode surface comprising a hemispherical geometry;

a return electrode having a surface area substantially larger than that of said electrode terminal;

an electrode support that holds the electrode terminal;

an electrically conductive fluid supply delivering electrically conductive fluid in the vicinity of the electrode terminal wherein said electrically conductive fluid has an electrical conductivity of at least 0.2 mS/cm; and

a connector extending from the electrode terminal to the proximal end of the shaft.

55. (Previously presented) The surgical instrument of claim 54 further comprising a return electrode positioned on the shaft proximal to the electrode terminal.

56. (Previously presented) The surgical instrument of claim 55 wherein the return electrode is a substantially annular band positioned proximal to the electrode terminal.

57. (Previously presented) The surgical instrument of claim 54 wherein a distal portion of the shaft is bent.

58. (Previously presented) The surgical instrument of claim 57 wherein a distal portion includes a bend of 10 to 30 degrees.

59. (Previously presented) The surgical instrument of claim 54 wherein the electrode terminal has a tissue treatment surface adapted to minimize dissociation and breakdown of collagen fibers in the tissue and to minimize ablation of tissue surrounding the collagen fibers

60. (Previously presented) The surgical instrument of claim 56 wherein the tissue treatment surfaces of the electrode terminal has a surface area less than about 1 $mm^2$.

61. (Previously presented) The surgical instrument of claim 54 wherein said electrode support comprises an inorganic material.

62. (Previously presented) The surgical instrument of claim 61 wherein said inorganic material is glass.

63. (Previously presented) The surgical instrument of claim 61 wherein said inorganic material comprises a ceramic.

64. (Previously presented) The surgical instrument of claim 63 wherein said inorganic material further comprises glass.

65. (Currently Amended) A surgical instrument for applying high frequency electrical energy to tissue at a target site comprising:

a shaft having a proximal end and a distal end;

a hemispherical-shaped electrode terminal;

an annular return electrode spaced proximally from said electrode terminal, said return electrode having a surface area substantially larger than that of said electrode terminal;

an electrically conductive fluid supply delivering electrically conductive fluid in the vicinity of the electrode terminal wherein said electrically conductive fluid has an electrical conductivity of at least 0.2 mS/cm and wherein said electrically conductive fluid sets up a conductive path between the return electrode and the electrode terminal; and

a connector extending from the electrode terminal to the proximal end of the shaft.

66. (Previously presented) The surgical instrument of claim 65 further comprising an electrode support configured to hold the electrode terminal, said electrode support being non-electrically conducting.

67. (Previously Presented) The instrument of claim 54 wherein said electrical conductivity of said fluid is at least 2 mS/cm.

68. (Previously presented) The instrument of claim 54 wherein said electrical conductivity of said fluid is at least 10 mS/cm.

69. (Previously presented) The instrument of claim 54 wherein said electrical conductivity of said fluid is about 17 mS/cm.

70. (Currently Amended) An electrosurgical system for applying high frequency electrical energy to a target site comprising:

a device comprising a shaft having a proximal end and a distal end, a hemispherical-shaped electrode terminal arranged at the distal end, an annular return electrode spaced proximally from said electrode terminal, said return electrode having a surface area substantially larger than that of said electrode terminal, and a connector extending from the electrode terminal to the proximal end of the shaft;

a power supply configured to supply a voltage difference between said electrode terminal and said return electrode; and

a fluid source for providing an electrically conductive fluid to the target site and said fluid having an electrical conductivity of at least 0.2 mS/cm.